

SOME GENERA AND SPECIES OF GROUND BEETLES NEW TO AUSTRALIA  
(COLEOPTERA: CARABIDAE)

MARTIN BAEHR

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Four genera of ground beetles are newly recorded from Australia: *Euplynes* Schmidt-Goebel (Agoninae), with the new species *E. decoloratus* sp. nov.; *Luchnothorax* Motschulsky (Odacanthinae), with the species *L. tokkia* Gestro; *Mochtherus* Schmidt-Goebel (Lebiinae), with the species *Mochtherus obscurus* (Sloane); and *Oxyodontus* Chaudoir (Lebiinae), with the species *O. tripunctatus* Chaudoir. *Dicraspeda longiloba* (Liebke) (Odacanthinae) is also newly recorded for Australia. It may be an example of re-immigration of an old Australian stock into Australia. Previous Australian and New Guinean records of *Catascopus smaragdulus* Dejean refer to the recently described species, *Catascopus moorei* Straneo, of which further Australian material is noted. These new records further stress the important role of the Cape York Peninsula as a gateway for the immigration of Oriental and Papuan elements into Australia. As most of the newly recorded species are widespread outside Australia and have not differentiated morphologically in Australia, these are probably recent immigrations. □ *Coleoptera, Carabidae, Australia, Cape York Peninsula, distribution, new species.*

*Martin Baehr, Zoologische Staatssammlung, Münchhausenstrasse 21, D-81247 München, Germany; received April 20 1999.*

During a visit to the Queensland Museum insect collection, Brisbane, I noted several carabid species from genera which are widespread in the Oriental Region, though not recorded for Australia. There were also New Guinea species not yet recorded from Australia. Since the Oriental-Australian faunistic relations are not yet fully understood, the new records are worth recording, even though most are well known genera and species relatively widespread in the Oriental and/or Papuan regions. These new records also demonstrate that the fauna of northern Australia, in particular that of Cape York Peninsula, is even more closely related to that of New Guinea and the Oriental Region than previously expected.

MATERIALS AND METHODS

Measurements were made with an ocular micrometer under a stereo microscope. Length was measured from apex of labrum to apex of elytra. Length of pronotum was taken along the midline. Measurements, therefore, may slightly differ from that of other authors, especially Darlington.

All material is in the Queensland Museum (QM), except for duplicates lodged in the Zoologische Staatssammlung, Munich (CBM) where indicated. Collectors are G. Monteith (GM), D. Cook (DC) and M. Baehr (MB).

Family CARABIDAE  
Subfamily AGONINAE  
*Euplynes* Schmidt-Goebel

*Euplynes decoloratus* sp. nov.  
(Figs 1-3)

ETYMOLOGY. Referring to the faded colour of the surface compared to the closely related, brightly coloured, *Euplynes apicalis* Darlington from New Guinea.

MATERIAL. Holotype, ♂, QMF93014, West Claudie R., Iron Range, N Qld, 3-10.xii.1985, GB, Monteith & D. Cook. Pyrethrum knockdown/RF (QM). Paratypes: 21♂, 7♀, same data (QM, CBM); 2♂, 1♀, Iron Range, Cape York Pen. N Qld 5-10.v.1968, G. Monteith (QM); 1♂, Gordon's Mine Area, Iron Range, N Qld 12-18.ii.1976, GB, Monteith, rainforest (QM).

DIAGNOSIS. Species of *Euplynes* with markedly impressed, but not differently coloured, posthumeral patch on elytra. Distinguished from the most closely related species, the New Guinean *E. apicalis* Darlington, by conspicuously faded, only indistinctly metallic blue surface of elytra and by absence of a distinct, reddish apical margin.

DESCRIPTION. *Measurements.* Length: 5.7-7.2mm; width: 2.55-3.4mm. Ratios: width pronotum/head: 1.30-1.35; width/length of pronotum: 1.44-1.47; width base/apex of pronotum:

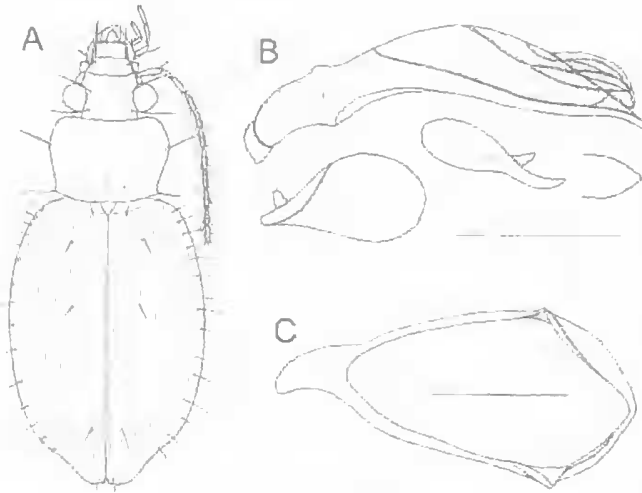


FIG. 1. *Euphlynes decoloratus* sp. nov. A, habitus (length 6.5mm). B, aedeagus and parameres. C, genital ring. Scale lines, 0.5mm.

1.19-1.24; length/width of elytra: 1.44-1.48; width elytra/pronotum: 1.61-1.68.

**Colour.** Head, pronotum, lower surface, and all appendages light reddish. Ground colour of elytra also light reddish, with rather slight bluish metallic lustre on basal two thirds or sometimes only in middle of basal half. Apical part light reddish, but even in specimens with more pronounced metallic hue the reddish apex not distinctly differentiated from colour of disk.

**Head.** Considerably narrower than pronotum. Eyes very large, semicircular, laterally far protruded. Frons with two circular grooves close to clypeal suture, in middle between eyes with a shallow, triangular groove. Labrum rectangular, 6-setose and with several shorter hairs around the anterior angles. Mandibles short and wide, at apex markedly incurved. Mentum with acute triangular tooth. Glossa bisetose, paraglossae surpassing glossa. Both palpi impilose. Antennae pilose from first third of fourth antennomere, elongate, surpassing humeri by about 3 antennomeres, central antennomeres slightly less than  $3 \times$  as long as wide. Surface of head extremely finely and sparsely punctulate, highly glossy.

**Pronotum.** Wide, depressed. Apex slightly concave, anterior angles widely rounded, sides evenly curved, with a tiny sinuation in front of the sharp, slightly projecting basal angles. Base laterally markedly oblique. Apex and base not margined. Lateral channel wide though shallow. Median line rather line, slightly impressed. Basal

grooves shallow, somewhat linear. Anterior lateral seta situated at widest diameter, posterior seta at basal angle. Surface on disk impunctate, laterally and at base rather finely and sparsely punctate, highly glossy.

**Elytra.** Wide, depressed. Humeri widely rounded off, lateral margins feebly convex, lateral part of apex moderately sinuate, apex in middle almost transverse, with a tiny, obtuse denticle at suture. Striae complete, fine, slightly impressed, finely punctate almost to apex, intervals feebly convex. In basal half of elytra stria 3 slightly incurved to suture, and striae 5 and 6 markedly outturned to lateral margin, in this part with a deep, halfmoon-shaped groove that is deepest laterally. Interval 3 tripunctate, 1st and 2nd punctures at stria 3 in basal half, 3rd puncture close to apex near stria 2. Intervals impunctate and without microreticulation, highly glossy.

**Lower surface.** Metepisternum elongate, approximately twice as long as wide. Terminal sternite in male bisetose, in female quadrisetose.

**Legs.** Elongate. In both sexes tarsomere 4 of all tarsi deeply cleft and densely squamose. Anterior tarsus in male barely wider than in female, though tarsomeres 1 and 3 biserially squamose beneath.

**Male genitalia** (Fig. 1B,C). Genital ring narrow and elongate, triangular, with elongate, asymmetric apex. Aedeagus elongate, lower surface slightly bisinuate, apex short, slightly curved down, gently triangular. Internal sac simply folded, without any sclerotisations. Both parameres rather circular, left one larger than right one.

**Female genitalia** (Fig. 2). Typical for *Euphlynes*. Stylomere 1 with several short setae at inner apical margin. Stylomere 2 elongate, with elongate, acute apex and about 10 large, dentiform ventral ensiform setae. Near apex with a short nematiform seta. On dorsal surface with a short, dentiform, subapical dorsal ensiform seta. Lateral plate large, at median apical margin with a densely setose area.

**Variation.** Little variation noted apart from some differences in size and in distinctness and extent of the metallic lustre on the elytra.

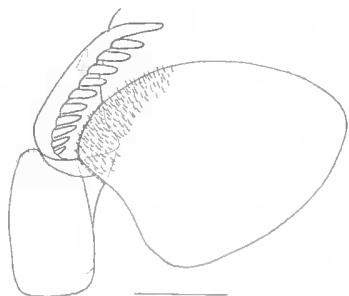


FIG. 2. *Euplynes decoloratus* sp. nov., ♀ stylumeres 1 and 2, and lateral plate. Scale line, 0.2mm.

**DISTRIBUTION AND HABITAT.** Iron Range, central Cape York Peninsula, northern Queensland. Most were collected by a pyrethrum knockdown technique on logs and tree trunk bases in lowland rainforest as described by Baehr (1995b). This observation is important as almost nothing is known about the biology of most other *Euplynes* species.

**REMARKS.** *Euplynes* is widespread in the Afrotropical and Oriental regions, where about 25 species occur. From neighbouring New Guinea only *Euplynes laetus* Darlington and *Euplynes apicalis* Darlington are recorded (Darlington, 1952, 1971). On the basis of body shape and colouration, especially the absence of a differently coloured, posthumeral elytral patch, the new species is apparently most closely related to *E. apicalis*.

This paleotropical genus was not previously recorded from Australia, though its occurrence at Iron Range is not surprising, because this area is well known for the large number of Oriental and Papuan faunal elements that do not occur elsewhere in Australia (Darlington, 1961, 1971). In contrast to the other new generic records presented here, this Australian representative of *Euplynes* has differentiated to full specific status. This could be evidence of immigration into Australia earlier than that of the following species.

Subfamily ODACANTHINAE  
**Dicraspeda** Chaudoir

**Dicraspeda longiloba** (Liebke)

*Dicraspeda longiloba* Liebke, 1938: 83 (*Philemonia*).  
*Dicraspeda longiloba* Darlington 1968: 212.

**MATERIAL.** 4♂, 2♀, West Claudie R., Iron Range, N Qld, 3-10.xii.1985, GM & DC, Pyrethrum knockdown/RF (QM, CBM); 1♂, Gordon Ck. Iron Range NP, NQ (QM).

**REMARKS.** *Dicraspeda longiloba* was originally described from New Guinea and later recorded from New Britain (Darlington, 1968). It is now recorded from Australia. The species is easily identified by the very elongate lobes of tarsomere 4 on all legs that are at least 3/4 the length of the whole tarsomere. *D. longiloba* is otherwise rather similar to *D. dubia* Gestro, a species also from New Guinea, and which has been recorded from Bamaga, at the extreme northern tip of Cape York Peninsula, by Darlington (1968) and Moore et al. (1987).

*Dicraspeda* seems to be originally an old Australian faunal element. Several of its species, as well as of the closely related genera *Eudalia* Castelnau and *Renneria* Baehr, live in eastern and northern Australia (Moore et al., 1987; Baehr, 1999). However, the species group that includes *D. dubia* (Gestro) and *D. longiloba* (Liebke) — the former subgenus *Philemonia* Liebke — has the centre of its diversity and most probably also its origin in New Guinea where a number of rather similar species occur (Baehr, 1996a, 1997, 1998). This species group is progressive in certain morphological characters, e.g. the enlarged and deeply cleft tarsomere 4, the development of apical elytral spines, etc., and presumably it is derived from an old Australian stock. In New Guinea, even more apotypic species groups (or subgenera) and even related genera have evolved from the *dubia*-stock, e.g. the species of subgenus *Macero-centra* Chaudoir and genus *Crassacantha* Baehr (Darlington, 1968; Baehr, 1995a). Therefore, the occurrence of *D. dubia* and *D. longiloba* in Cape York Peninsula is most probably due to a recent re-immigration of these species into Australia from New Guinea.

The reported collecting circumstances ('pyrethrum knockdown in rainforest') support statements about the New Guinean species of *Dicraspeda* s.l. by Darlington (1968) and Baehr (1997). Both argue that the species obviously live in leaf litter of rainforest rather than near water, which is the typical habits of most other odacanthines. The change to life in rainforest litter thus may have been occurred in New Guinea during the evolution of the *dubia* species-group.

**Lachnothorax** Motschulsky

**Lachnothorax tokkia** Gestro

*Lachnothorax tokkia* Gestro, 1875: 856.  
*Lachnothorax tokkia* Darlington 1968: 214.



FIG. 3. Map of Cape York Peninsula, showing localities mentioned in text. Position of dry barrier zone which separates rainforests of Cape York Peninsula from the Wet Tropics is shown.

MATERIAL. 6, Telegraph Crossing, Dulhunty R., Cape York Pen. N Qld. 2-4.VII.1975, GM (QM, CBM).

REMARKS. *Lachnothorax* is widespread in the Oriental region and is new to Australia. *Lachnothorax tokkia* has been recorded from New Guinea (Darlington, 1968) and is also distributed over much of the Indonesian Archipelago. Related species occur on the Asian mainland and on the Philippine islands (Baehr, 1996b).

Apparently *L. tokkia* lives on the sandy shore of rivers and lakes and the Australian record is also from a river in the northern part of the Cape York Peninsula. This species is also almost certainly a rather recent invader from New Guinea and the Oriental region.

#### Subfamily LEBIINAE

#### *Catascopus* Kirby

#### *Catascopus moorei* Straneo

*Catascopus moorei* Straneo, 1994: 164.

MATERIAL. 1♂, Cape York Old/Cairns dist., J.A. Anderson/*Catascopus* 3819 Cape York (QM); 1♀, N Qld, Bamaga, 12.5.1993, M. Baehr (CBM).

REMARKS. This species was recently described from Iron Range, Cape York Peninsula (Straneo, 1994). This is probably the species that has been recorded under the name of *C. smaragdulus*

Dejean from New Guinea (Darlington, 1968) and from Rocky Scrub and Iron Range in northern and central Cape York Peninsula, respectively (Darlington, 1968; Moore et al., 1987). The real *C. smaragdulus*, however, is a wholly Oriental species that probably does not reach New Guinea.

There are two new records of *C. moorei* from Australia and also new unpublished records from New Guinea. The Queensland Museum specimen cited above, however, is quite old according to the label. The rather vague locality record 'Cairns distr.' probably does not refer to the immediate vicinity of Cairns but rather to more northerly localities within Cape York Peninsula proper. The label statement 'Cape York' may even mean that it was collected at the true Cape York, right at the tip of the Peninsula, which is not far from Bamaga (Fig. 3).

#### *Mochtherus* Schmidt-Goebel

#### *Mochtherus obscurus* (Sloane)

*Simrus obscurus* Sloane, 1907: 183.

*Mochtherus obscurus* Darlington, 1968: 123.

MATERIAL. 19, West Claudie R., Iron Range, N Qld, 3-10.xii.1985, GM & DC, pyrethrum knockdown/RF (QM, CBM); 2, 3km E of Lockerbie, Cape York, N Qld, 19-23.iii.1987, GM, pyrethrum on logs (QM).

REMARKS. *Mochtherus* is newly recorded from the Australian mainland, though a related species, *M. tetraspilotos* (Macleay), was recorded from Christmas Island (Moore et al., 1987). The latter species is very widely distributed over most of the Oriental Region. *Mochtherus obscurus* is widespread in New Guinea (Darlington, 1968) and is a typical rainforest dweller that lives on tree trunks and fallen logs. The collecting circumstances confirm these habits also for northern Australia. It is probably a rather recent immigrant into Australia from New Guinea. The new record once more strengthens the position of the Iron Range as a stronghold of Papuan-Oriental faunal elements.

#### *Oxyodontus* Chaudoir

#### *Oxyodontus tripunctatus* Chaudoir

*Oxyodontus tripunctatus* Chaudoir, 1869: 239.

*Oxyodontus tripunctatus* Darlington, 1968: 122.

MATERIAL. 2, West Claudie R., Iron Range, N Qld, 3-10.xii.1985, GM & DC, pyrethrum knockdown/RF (QM, CBM).

REMARKS. The monotypic *Oxyodontus tripunctatus* is widespread throughout the Oriental and Papuan regions (Darlington, 1968). It lives in the same manner as the foregoing species and has been collected in the same area using the same method. Both genus and species are likewise new to Australia.

#### DISCUSSION

Philip J. Darlington Jr first drew attention to the important role of the rain forest blocks of Cape York Peninsula as gateways for Oriental rainforest Carabidae migrating into Australia (Darlington, 1961, 1971). The names he used for the different rainforest blocks were: 'Tip-of-Peninsula' for the small rainforest patches near Bamaga and Lockerbie just south of Cape York, itself; 'Mid-Peninsula', for those at McIlwraith Range (including Rocky Scrub) and Iron Range near the eastern coast half way down the peninsula; and 'Base-of-Peninsula' for those substantial tropical rainforests that stretch from about Cooktown south to Townsville, and which we now know as the 'Wet Tropics'. These separate rainforest systems are separated by wide bands of open, drier, sclerophyll forest. Wider discussion and further evidence of the important biogeographic role of these Cape York Peninsula rainforests was given by Kikkawa et al. (1981).

The new records from Australia, presented here, of genera and species widespread in the Oriental and Papuan Regions, corroborate this important role of Cape York Peninsula. They further raise the proportion of Oriental taxa in the major rainforest blocks at the northern tip and in the centre of Cape York Peninsula. These increasingly prove to be outliers of the Oriental fauna on the Australian continent and have very few endemic Australian faunal elements. Indeed, the large rainforest-inhabiting carabid genera of endemic Australian origin, such as *Pamborus*, *Philippis*, *Leiradira*, *Castelnaudia*, *Trichosternus*, *Nurus* and *Notonomus*, are not present at all in the central and northern Peninsula rainforests. Instead, they have their northern limits in the Cooktown-Mt Finnigan area at the base of Cape York Peninsula, or even further south (*Nurus*). Only a few small, rather peculiar, genera, that are derived from the southern endemic genera, occur in the mid-Peninsular and tip-of peninsula rainforests, namely *Paranurus* and *Notabax* in the mid-Peninsula forests, and *Paranurus* and *Mecynognathus* in the tip-of-Peninsula rainforests. They are probably secondary immigrants into Cape York Peninsula from the south that

arrived when the climate was wetter during last glaciation period, and when the sclerophyll forest barriers were not as wide or as powerful as they are today. At least some species of *Paranurus* have adapted to life in open forest rather than rain forest.

Conversely, many carabid genera and species of Oriental origin, including those reported here, do not penetrate further south than the Iron Range rainforest block in the mid-Peninsula zone. This is probably the consequence of their very recent immigration into Australia, and their inability to cross the wide corridor of open forest at the base of Cape York Peninsula that opened, or at least has widened, since end of last glaciation period (Fig. 3). These distribution patterns in the Peninsula, as noted for the Carabidae, have been shown to be identical in other groups of rainforest insects, such as the aradid bark bugs (Monteith, 1997).

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